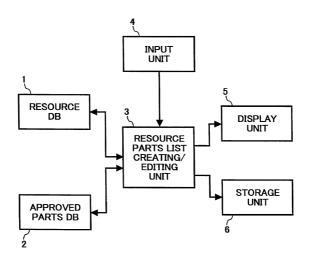
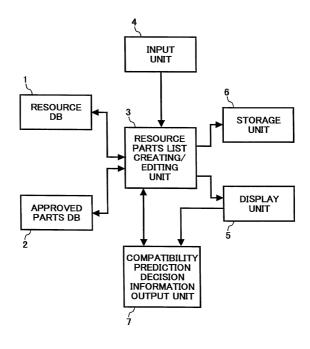
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FIG. 1



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FIG. 2



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FIG. 3A

	FUNCTION LEVEL 1	FUNCTION LEVEL 2	FUNCTION LEVEL 3	
1	READ	IMAGE SENSOR		SENSING
2	READ	ANALOGUE SIGNAL PROCESSING	DIRTY BACKGROUND REMOVAL	ELECTRICAL

FIG. 3B

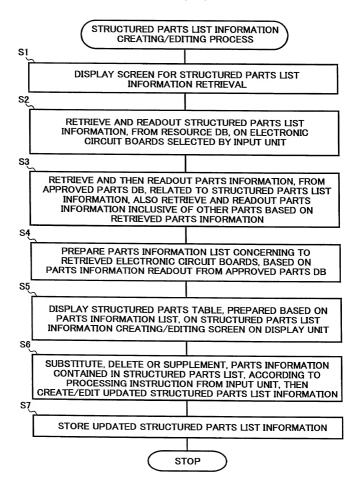
QUANTITY

	FUNCTIONAL DEVICE	MAKER	MAKER'S MODEL NUMBER	MAKER'S PART NUMBER	UNIT PRICE	
1	CCD LINEAR IMAGE SENSOR	A CO.	xxxxxx	xxxxxx	xxxx	1
2	CUSTOM IC	B CO.	xxxxxx	xxxxxx	xxxx	1

FIG. 3C

	PCB	USER'S PART NUMBER	UNIT
1	PRINTED BOARD: XX TYPE	xxxxxx	SCANNER
2	PRINTED BOARD: XX TYPE	xxxxxx	SCANNER

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L KEY AL KEY AL KEY ASS E CATION T NUMBER T ATUS TATUS TATUS	PRINT SPEC APPEARANCE CLASS DATA CHARACTERISTICS	/\d/\ rr/\andadad	KEIKIEVAL NEY	CB PART CLASS PCB	PCB NAME AA-BB	PROD LOCATION	·· PCB PART NUMBER A123 SHAPE	PART NAME POB: LL MOUNT METHOD	MODEL STATUS GENERAL EXTERNAL VIEW	DATA RETRIEVED: 1 DELIVERY SPEC	DATA RETRIEVED: 1 BRIEF FOOTPRINT	NAME PROD LOCATION PART NAME	88		A2	B2		
AL KEY AL KEY ASS E CATION T NUMBER T ATUS TRIEVED: STATUS STATUS ENERAL ENERAL ENERAL ENERAL ENERAL ENERAL ENERAL	PRINT			PCB	_ [:]	- :	 [:]		<u> </u>		1	PCB NAME PROD LOG	AA-BB	AA-CC	L-1A2	L-1B2 ···	DEF-1	
			IEVAL KEY	PART CLASS	PCB NAME	PROD LOCATION	PCB PART NUMBER	PART NAME	MODEL STATUS		DATA RETRIEVED: 11			_	_	21.53		

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FIG. (

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							П	П		:	:	:	:		:	:	:	
						٥	:			CURRENT PRICE	•••				::		:	
						RODUCE		ΈD		QUAN- TTTY	•••		::		•••			
						MASS-P		PRODUC		ALTER- ATION	:		•••	•••	•••	•••	:	
		TINO				PRICE WHEN MASS-PRODUCED	NET COST	STIMATED PRICE WHEN MASS-PRODUCED		MAKER	A ELECTRONICS	A ELECTRONICS	A ELECTRONICS	B ELECTRIC	B ELECTRIC	C INDUSTRY		
	STICS	VALUE					:	:		0							:	
	CTERIS	ш			I	JGE 10E	ш	ICE [MAKER'S MODEL N	151525-3	153123-7	153123-8	AB114	AB333	3-GEC	:	
	3 CHARACTERISTICS	NAME				CURRENT PRICE	NET PRICE	CURRENT PRICE		PART CLASS	CONNECTOR TO/FROM BOARD	CONNECTOR SIGNAL SYSTEM	CONNECTOR SIGNAL SYSTEM	TRANSISTOR	TRANSISTOR	RESISTOR ARRAY 3-GEG-1		
	PCB						:			PART NUMBER	01234	50011	51907	08812	08643	04438		
	PART CLASS	PCB NAME	PROD LOCATION PCB PART NUMBER	PART NAME	MODEL STATUS		TARGET PRICE (DESIRED)	TARGET PRICE (MANDATORY)		STATUS	RECOMMENDED 01234	APPROVED	APPROVED	APPROVED	APPROVED	APPROVED		
L				_	_	<u> </u>								Ţ				1

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: CURRENT : PRICE : : : : : PRICE WHEN MASS-PRODUCED ALTER- QUAN-ATION TITY : : : : : WHEN MASS-PRODUCED ATION : : : : : : ESTIMATED PRICE A ELECTRONICS A ELECTRONICS A ELECTRONICS NET COST LIND C INDUSTRY B ELECTRIC M FACTORY MAKER FIG. 7 VALUE CHARACTERISTICS MODEL NO. 151525-3 MAKER'S 153123-7 153123-8 M111LL33 3-GEG-1 AB333 CURRENT PRICE CURRENT PRICE NAME TO/FROM BOARD RESISTOR ARRAY **NET PRICE** SIGNAL SYSTEM CONNECTOR SIGNAL SYSTEM PART CLASS **TRANSISTOR** CONNECTOR CONNECTOR TRANSISTOR PCB : : : : NUMBER : 51907 08643 04438 PART RECOMMENDED 01234 50011 RECOMMENDED 70458 PCB PART NUMBER PROD LOCATION TARGET PRICE MODEL STATUS TARGET PRICE (MANDATORY) PART CLASS PART NAME STATUS (DESIRED) **APPROVED** APPROVED APPROVED APPROVED PCB NAME

:

:

: |:

:

N PART INDUSTRY

M72-125

MEMORY DRAM

RECOMMENDED 202201

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FIG. 8

STRUCTURED PARTS LOST INFORMATION CREATING/EDITING PROCESS

S1>

DISPLAY SCREEN FOR STRUCTURED PARTS LIST INFORMATION RETRIEVAL

S2₂

RETRIEVE AND READOUT STRUCTURED PARTS LIST INFORMATION, FROM RESOURCE DB, ON ELECTRONIC CIRCUIT BOARDS SELECTED BY INPUT UNIT

S3,

RETRIEVE AND THEN READOUT PARTS INFORMATION, FROM APPROVED PARTS DB, RELATED TO STRUCTURED PARTS LIST INFORMATION, ALSO RETRIEVE AND READOUT PARTS INFORMATION INCLUSIVE OF OTHER PARTS BASED ON RETRIEVED PARTS INFORMATION

S4₂

PREPARE PARTS INFORMATION LIST CONCERNING TO RETRIEVED ELECTRONIC CIRCUIT BOARDS, BASED ON PARTS INFORMATION READOUT FROM APPROVED PARTS DB

S5_>

DISPLAY STRUCTURED PARTS TABLE, PREPARED BASED ON PARTS INFORMATION LIST, ON STRUCTURED PARTS LIST INFORMATION CREATING/EDITING SCREEN ON DISPLAY UNIT

S6_≥

SUBSTITUTE, DELETE OR SUPPLEMENT, PARTS INFORMATION CONTAINED IN STRUCTURED PARTS LIST, ACCORDING TO PROCESSING INSTRUCTION FROM INPUT UNIT, THEN CREATE/EDIT UPDATED STRUCTURED PARTS INFORMATION

S7₂

STORE UPDATED STRUCTURED PARTS LIST INFORMATION

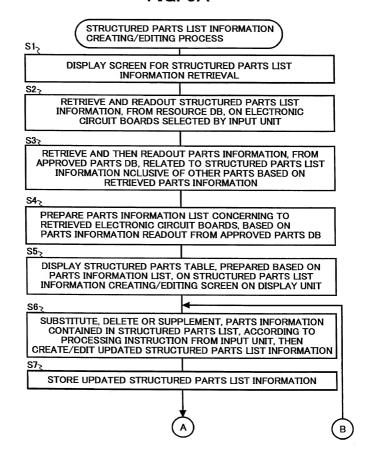
S8_≥

EXAMINE PREDETERMINED PWB PACKAGING DENSITY, PWB MANUFACTURING COSTS, PART FLOORPLAN AND SIMULATION, BASED ON UPDATED PARTS INFORMATION LIST IN STRUCTURED PARTS LIST INFORMATION, AND CREATE, THEN DISPLAY DECISION INFORMATION FOR COMPATIBILITY PREDICTION BASED ON EXAMINATION RESULTS

RE-EDIT ? YES NO STOP

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FIG. 9A



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FIG. 9B

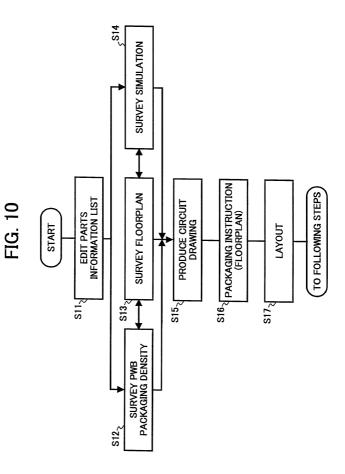
S8_\

EXAMINES PREDETERMINED PWB PACKAGING DENSITY, PWB MANUFACTURING COSTS, PART FLOORPLAN AND SIMULATION, BASED ON UPDATED PARTS INFORMATION LIST IN STRUCTURED PARTS LIST INFORMATION, AND GENERATE, THEN DISPLAY DECISION INFORMATION FOR COMPATIBILITY PREDICTION BASED ON EXAMINATION RESULTS. CREATE AND DISPLAY DECISION PREDICTION INFORMATION TO FACILITATE SUCCEEDING STEPS FOR THE VERIFICATION OF CIRCUIT OPERATION AND CHARACTERISTICS, BASED ON SIMULATION RESULTS FOR PLURAL SIMULATION MODELS FORMED ACCORDING TO TECHNICAL REQUIREMENTS FOR SEEN FOR THE CIRCUIT BOARD ALREADY STORED AS DATA BASE



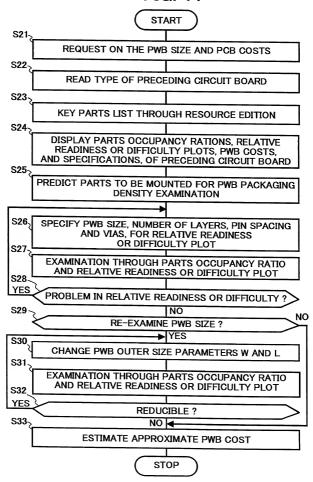
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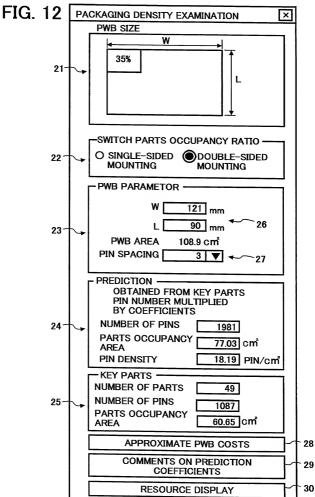


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3.4

DOCKET #: 202447US-2 INV: TAKAHASHI, ET AL. SHEET 14 OF 22 **PWB SIZE** W 24% 23 FIG.13A -SWITCH PARTS OCCUPANCY RATIO -O SINGLE-SIDED ODOUBLE-SIDED 22 MOUNTING MOUNTING PWB SIZE W 36% 23 FIG.13B SWITCH PARTS OCCUPANCY RATIO -O SINGLE-SIDED O DOUBLE-SIDED 22 MOUNTING MOUNTING **PWB SIZE** W 40% -23 **FIG.13C** -SWITCH PARTS OCCUPANCY RATIO -O SINGLE-SIDED DOUBLE-SIDED 22 MOUNTING MOUNTING

OBLON, SPIVAK, ET AL

`* <u>* * *</u>* ,

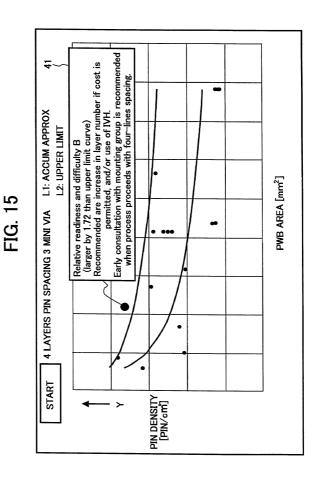
OBLON, SPIVAK, ET AL DOCKET #: 202447US-2 INV: TAKAHASHI, ET AL. SHEET 15_ OF_22_

2 Early consultation with mounting group is recommended Confirmation is recommended with four-lines spacing. Difficulty is foreseen with three-lines pin spacing. when process proceeds with three-lines spacing. L1: ACCUM APPROX (larger by 3.86 than upper limit curve) Relative readiness and difficulty A L2: UPPER LIMIT PWB AREA [mm²] 슝. 4 LAYERS PIN SPACING 3 MINI VIA START PIN DENSITY [PIN/cm²]

FIG. 14

** * ** ** *

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L1: ACCUM APPROX L2: UPPER LIMIT PWB AREA [mm²] UNIT NAME: XXXXXX (DOM) PCB: BCU 4 LAYERS PIN SPACING 3 MINI VIA START PIN DENSITY [PIN/cm]

FIG. 16

" \$ * * * * * *

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889 APPROXIMATE COSTS	×
PWB SIZE 121 × 90 PIN SPACING 3 LINES	
SHEET THICKNESS O 1.0 O 1.2 1.6	
MATERIALS FR-4 O CFM-3	
O Middle Mini O BVH	
O 2	
CUT-OUT SHEET NUMBER = 36 APPROXIMATE COSTS = 889 YEN	

- "4 x * 5 x y

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Number of pins and parts occupancy area are estimated Accordingly, further calculations based on these values those obtained experimental data. In the present calculation, therefore, prediction coefficit that persent calculation, therefore, prediction coefficit that are provided to estimate these values the beauting on the PWB by taking into account of predict to be mounted. RATIO OF PIN NUMBER PREA PREA	Number of pins and parts occupancy area are estimated based on key parts arrangement. Accordingly, further calculations based on these values may yield results different from those obtained experimental data. In the present calculation, therefore, prediction coefficients are used as shown below in the table, which are provided to estimate these values more precisely to realize actual mounting on the PWB by taking into account of predicted number of the parts expected to be mounted. RATIO OF PIN NUMBER PARTS PER PREDICTED PREDICTED PIN NUMBER PIN PIN NUMBER PIN PIN NUMBER PIN
noy sas sas sas sas sas sas sas sas sas sa	area are estima ed on these valu prediction coeff mate these value account of prediction of mate these value account of prediction of a per per

1 ** 100

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FIG. 19A

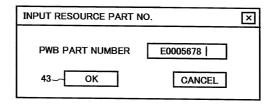


FIG. 19B

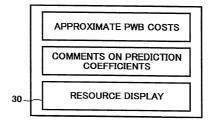
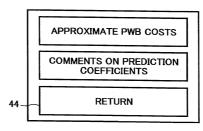


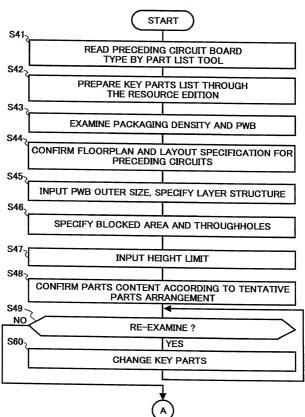
FIG. 19C



14 44 7 4 4

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